

Lower Risks of Death and On-Treatment Hospitalization in DaVita Rx Members Versus Matched Controls

Eric D. Weinhandl, MS,¹ Wendy L. St. Peter, PharmD^{1,2}

¹Chronic Disease Research Group, Minneapolis Medical Research Foundation, Minneapolis, MN, US; ²College of Pharmacy, University of Minnesota, Minneapolis, MN, US

Introduction

- DaVita Rx is a full-service pharmacy that specializes in kidney care.
 - Medication prescriptions are filled at 3 pharmacies and typically dispensed in dialysis facilities.
- In a recent study, receiving integrated pharmacy services from DaVita Rx was associated with lower rates of death and fewer hospitalized days among dialysis patients from 2006 to 2008.

Weinhandl ED, Arneson TJ, St Peter WL. Clinical outcomes associated with receipt of integrated pharmacy services by hemodialysis patients: a quality improvement report. *Am J Kidney Dis.* 2013;62(3):557-567.
- That study was limited in several ways:
 - Only in-center hemodialysis patients were included.
 - Only patients concurrently enrolled in Medicare and Medicaid were included.
 - Analyses were not adjusted for blood pressure at baseline.
- We aimed to replicate these associations in a broader, more contemporary cohort:
 - New DaVita Rx members from 2007 to 2010.
 - All dialytic modalities.
 - All patients enrolled in Medicare Parts A, B, and D, regardless of concurrent Medicaid enrollment.
- We also aimed to improve control of baseline infection risk, as we previously reported that DaVita Rx members had an unexpectedly lower rate of infection-related hospitalization.

Methods

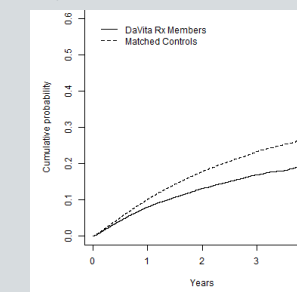
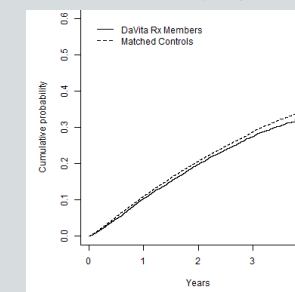
- DaVita records and United States Renal Data System (USRDS) records were linked.
- The exposed cohort comprised new DaVita Rx members (first medication filled by a DaVita Rx pharmacy) between January 1, 2007, and December 31, 2010.
- All members had Medicare Parts A, B, and D coverage for ≥ 3 months before the date of new DaVita Rx enrollment.
- For each member, we identified 3 matched controls among patients at within-state DaVita dialysis facilities, according to an 81-factor propensity score of new DaVita Rx enrollment.
 - Candidate controls were identified on the corresponding member's date of new DaVita Rx enrollment.
 - To optimize match quality, controls were sampled with replacement.
- We followed patients until December 31, 2010, with intention-to-treat (ITT) and on-treatment (OT) rules.
 - By the OT approach, follow-up was censored after 3 consecutive calendar months without medication filled by DaVita Rx pharmacies.
- We ascertained the incidence of death and hospitalization from USRDS records.
- Causes of hospitalization were identified from primary discharge diagnoses on Medicare Part A inpatient facility claims.

Results

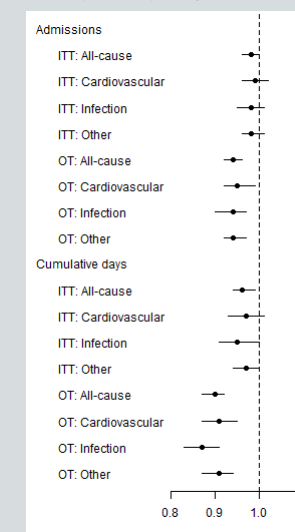
- We identified 19,354 new DaVita Rx members and 58,045 matched controls.
- The groups were balanced according to all measured baseline factors.
- At 1 year, the ITT cumulative incidence of death was 10.3% vs. 10.9% for DaVita Rx members vs. matched controls.
 - Overall hazard ratio (HR): 0.94; 95% confidence interval (CI): 0.90-0.98.
- At 1 year, the OT cumulative incidence of death was 8.0% vs. 10.9% for DaVita Rx members vs. matched controls.
 - Overall HR: 0.82; 95% CI: 0.77-0.87.
- By the ITT (OT) approach, hospitalization rates in DaVita Rx members were 1.70 (1.63) admissions and 10.12 (9.29) cumulative days per patient-year.
- ITT relative rates (RRs) and 95% CIs of hospitalization for DaVita Rx members vs. matched controls were:
 - 0.98 (0.96-1.00) for admissions.
 - 0.96 (0.94-0.99) for cumulative days.
- OT RRs of hospitalization for DaVita Rx members vs. matched controls were:
 - 0.94 (0.92-0.96) for admissions.
 - 0.90 (0.87-0.92) for cumulative days.
- By the OT approach, cumulative days were significantly less in DaVita Rx members for primary diagnoses of heart failure, hypertensive disease, peripheral arterial disease, and bacteremia/sepsis.
- Changes in DaVita Rx enrollment status were common.

Cumulative Incidence of Death for DaVita Rx Members vs. Matched Controls

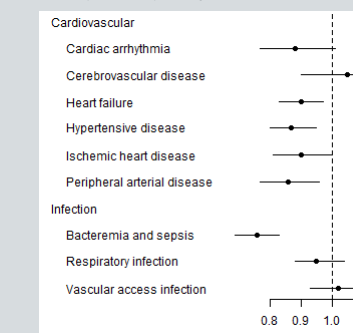
Left Panel: Intention-to-treat analysis; Right Panel: On-treatment analysis



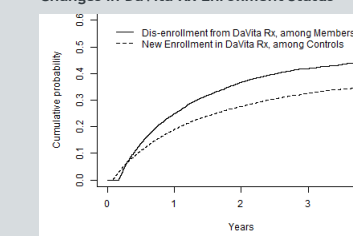
Relative Rates of Hospitalization
DaVita Rx Members vs. Matched Controls



OT Relative Rates of Hospitalized Days
DaVita Rx Members vs. Matched Controls



Changes in DaVita Rx Enrollment Status



Conclusions

- Receiving integrated pharmacy services from DaVita Rx was associated with significantly lower risk of death, regardless of follow-up approach.
- DaVita Rx members had lower rates of hospitalization in on-treatment analysis.
- Substantial dis-enrollment from DaVita Rx likely contributed to weak associations of membership with hospitalization in intention-to treat follow-up.
- That DaVita Rx members had lower rates of cumulative days in hospital for most types of cardiovascular morbidity may suggest improved utilization of cardiovascular medications.
- The strong association of DaVita Rx membership with bacteremia/sepsis is enigmatic, but might reflect improved utilization of cardiovascular medications, resulting in improved patency of vascular accesses (and less exposure time to catheters).
 - Further investigation of this possible mechanism is warranted.
- All observational studies are subject to unmeasured confounding.
- In this study, results from OT analyses may partially represent the influence of informative censoring, whereby less vs. more adherent patients are relatively likely to dis-enroll from DaVita Rx.



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